To: Costa, Dan[Costa.Dan@epa.gov]
Cc: Gwinn, Maureen[gwinn.maureen@epa.gov]; Miller, Andy[Miller.Andy@epa.gov]; Rodan, Bruce[rodan.bruce@epa.gov]
From: Kavlock, Robert
Sent: Thur 6/8/2017 12:53:08 PM
Subject: Re: Draft note to Bob on red/blue team issue

Thanks, also including Bruce so he is aware. Let's keep a close eye on this.

On Jun 8, 2017, at 7:58 AM, Costa, Dan <Costa.Dan@epa.gov> wrote:

Hi Bob

As I noted yesterday, I asked Andy to summarize/distinguish between his conversations with the citizen who sent a letter to Pruitt suggesting some analysis on model accuracy from the red-blue Pruitt suggestion. Below is what Andy sent. I think it is pretty clear but I did highlight the letter aspect below since at some point if we proceed there would need to be money we don't have in NCER or a typical STAR process to follow for that matter. We can discuss at a later date.

dlc

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Dan Costa, Sc.D., DABT

National Program Director for Air, Climate and Energy (ORD/EPA)

Mail: D143-01, EPA Research Campus, Research Triangle Park, NC 27711; FedEx Address: 4930 page Rd, Durham, NC 27703

Office: D142C; ph: 919.541.2532; work cell: 919.280.6841; personal cell 919.951.9983; fax 919.541.0065

Email: costa.dan@epa.gov; personal: costadl@yahoo.com

Bob

There have been a number of news reports about the Administrator's endorsement of a "red team – blue team" approach to climate science, in essence giving voice to those who are skeptical of the consensus science. There are positives and negatives regarding this effort, and we as ORD should be in a position to provide some perspectives.

In general, I see this as a positive approach, with some caveats. The most positive aspect of

this approach is that it provides an opportunity to clearly demonstrate the strength of the science on climate change. I am fully confident that the science is more than solid enough to deal with any of the issues that the skeptics can raise. There is a real opportunity here to put to rest the notion that the science remains uncertain.

I will also say that this is not, to me, a science issue. The core science is probably more sound than much of what we use to develop policy. It is an issue of trust in the science. If this approach can improve that trust, it will be more than worth the cost. But there are issues that will complicate things, as noted below. Scientifically, one more study will not make a difference. Politically, it could make a difference if it's doen correctly.

The caveats:

•□□□□□□ First, and most critical, any approach that is taken must be conducted within the requirements that we have taken for granted for years, including objectively peer-reviewed data and model results, transparency of review and comment processes, and availability of underlying data are all critical to a meaningful result. In essence, any red team – blue team approach needs to meet the requirements that we are bound to follow in EPA. If the process does not meet those requirements, we cannot legally use the results.

•□□□□□□ Second, this approach will find that the climate science has gaps and shortcomings. Those have been clearly articulated in the body of major assessments from the IPCC, USGCRP, and NAS over the past 3 decades. Although the public announcements will certainly focus on those areas that are of most value to those making the announcements, we (ORD) need to be clear from the outset that we recognize that there are gaps and shortcomings, but that the critical issue is the consistency of the major findings and trends. Our position should be the same for climate science as it is for other research issues – it's the full body of evidence that matters, both to the science and, in our case, to the Agency.

•□□□□□□ Finally, this approach (if taken) will certainly demonstrate that there is uncertainty in the results. Some of that uncertainty is irreducible – we simply cannot predict how policies and technologies will change. There are also some areas of fundamental (and potentially irreducible) uncertainties in the physical responses of the climate system as well. Much of the focus related to uncertainty has been on climate models. The implication has generally been that climate models are over-predicting changes. In fact, climate models have tended to under-predict many key climate system behaviors, such as loss of land-based ice and Arctic sea ice, which have been considerably faster than models expected. We know that uncertainty is not a "yes/no" measure, but more of a "how much/when" measure. But these are generally the scientific details, and are to a considerable extent irrelevant to the climate policy debate. EPA specifically, and the government more generally, is in the business of making decisions that involve a lot of

uncertainty. We call this risk management, and we have had a lot of practice at it and are very good at it. We are entirely unable to predict when, where, or how we may be attacked, or even who might attack us. Yet we spend more than a billion dollars a day to maintain national security. This is the most obvious example of how we manage risk when there is enormous uncertainty, but it is far from the only one. Climate models and observations are consistent in telling us that our systems are at potentially grave risk, even if they are not "precise."

I realize that we (ORD) are not likely to play much of a role in this effort, should it move forward. We do need to make sure that we are supporting the need for quality science that can be used by EPA – the first point above. We also need to be in a position to explain meaning of the results, which fall to the second and third points.

I will also note that I've talked with Rona Birnbaum in OAP about this red team-blue team idea, and she is not very supportive. Her position is that the science has been demonstrated by those major assessments I noted above.

One more point. I responded to a citizen letter (email) to the Administrator in April, which has led to a few discussions with the citizen (from Oklahoma, who address the note, "Scott:") who was very interested in finding ways to support a study (independent of federal agencies, but peer-reviewed) of climate model accuracy. In those discussions, it's clear that this citizen (Randy Foutch) has the contacts and the drive to push for such a study. In those discussions, we have since come to the conclusion that simply another study is not what is needed, at least at the outset. Rather, the issue is one of trust of the science and the scientists (or lack of such trust). I am continuing those discussions, and have reached out to NAS and USGCRP as other possible venues for hosting a series of dialogs that will help build engagement between the scientific community and industry. This red team-blue team proposal has some potential bearing on these discussions, but would not result in overcoming the barriers in engaging with industry.

C.A. (Andy) Miller

Associate Director for Climate

Air, Climate, and Energy Research Program

US EPA Office of Research and Development

Los Angeles, CA

Miller.andy@epa.gov

(213) 244-1809

(919) 699-3072 (cell)